



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,102	02/27/2004	Satoru Inami	00684.003599	5072

5514 7590 03/19/2007
FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

WALSH, RYAN D

ART UNIT	PAPER NUMBER
----------	--------------

2852

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/787,102

Applicant(s)

INAMI ET AL.

Examiner

Ryan D. Walsh

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 12, 2007 has been entered.

Claim Objections

Claims 1, 4, and 13 are objected to because of the following informalities:

Regarding claims 1 and 13, the claimed, "without the developer carried on said developer carrying member" is not consistent with the drawings or original specification. Referring to Figure 3 of applicant's drawings, the developer (11) is always "carried" on said developing carrying member (10).

Regarding claim 4, the claimed "particle size (pm)" should be changed to "particle size (μm)".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 7-8, 13 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Okano et al. (US Pat. # 5,177,537), hereinafter referred to as Okano.

Regarding claims 1, 4 and 13, Okano teaches, "A developing apparatus comprising: a developer carrying member (Fig. 4, ref. # 4) for carrying a developer; a developer regulating member (5), contacted to said developer carrying member, for regulating a thickness of a layer of the developer on said developer carrying member; and a lubricant (9), provided in a contact portion between said developer carrying member and said developer regulating member without the developer carried on said developer carrying member (Col. 4, Ln. 29-30), wherein a charge polarity of said lubricant is opposite to a charge polarity of said developer (Col. 4, Ln. 26-29), and a weight average particle size of said lubricant is not more than 1/3 of a weight average particle size of said developer (Col. 5, Ln. 29-34), wherein a weight average particle size of said lubricant is smaller than an arithmetic average roughness Ra value of a surface of said developer carrying member (Col. 6, Ln. 1-4)."

Regarding claims 7-8 and 18-19, Okano teaches, "wherein said lubricant has a weight average particle size of 0.01 μ m – 1.5 μ m and wherein said lubricant has a weight average particle size of 0.01 μ m - 3 μ m (Col. 5, Ln. 55-56)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (US Pat. # 5,177,537) in view of Japanese Laid-Open Patent Application (2002-278262).

Regarding claims 2-3 and 14-15, Okano does not teach, "wherein said lubricant comprises spherical particles having an average circularity not less than 0.90, or wherein said lubricant comprises polymer particle." However, having wherein said lubricant comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle is routine in the art as shown by Japanese Laid-Open Patent Application (2002-278262), as described in the present application (Spec. Page 4, Ln. 18-22). It would have been obvious to one skilled in the art at the time the invention was made to modify Okano to include a lubricant that comprises spherical particles having an average circularity not less than 0.90 and is a polymer particle.

The ordinary artisan would have been motivated to modify Okano in a manner described above for at least the purpose of promoting uniform development throughout the entire surface of the developing roller.

Claims 5, 12, 16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (US Pat. # 5,177,537) in view of Shinohara et al. (US Pat. # 6,163,663), hereinafter referred to as Shinohara.

Regarding claims 5 and 16, Okano does not teach, "wherein the charge polarity of said developer is negative, and said lubricant comprises melamine resin material particles." However, Shinohara teaches, "wherein the charge polarity of said developer is negative (Col. 5, Ln. 46), and said lubricant comprises melamine resin material

Art Unit: 2852

particles (Col. 5, Ln. 63)." It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Okano's invention to include wherein the charge polarity of said developer is negative, and said lubricant comprises melamine resin material particles.

The ordinary artisan would have been motivated to modify Okano's invention in a manner described above for at least the purpose of ensuring less friction between the developing blade and the developing roller and also promoting thermal and oxidation stability within the developing unit.

Regarding claims 12 and 23, Okano does not teach, "wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus." However, Shinohara teaches the deficiencies of Okano (Col. 45, Ln. 11-12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Okano's invention to include wherein said developing apparatus is provided in a cartridge detachably mountable to a main assembly of an image forming apparatus.

The ordinary artisan would have been motivated to modify Okano's invention in a manner described above for at least the purpose of enabling a user to change expired parts in the apparatus without the help of a technician, which in turn, will reduce time and maintenance costs.

Claims 6 and 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (US Pat. # 5,177,537) in view of Okamoto et al. (US Pat. # 6,391,511), hereinafter referred to as Okamoto.

Regarding claims 6 and 17, Okano does not teach, "wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles." However, the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles is routine in the art as shown by Okamoto (Col. 8 Ln. 45-47 and Col. 9, Ln. 8-23). It would have been obvious to one skilled in the art at the time the invention was made to modify Okano to include wherein the charge polarity of said developer is positive, and said lubricant comprises fluorine resin material particles.

The ordinary artisan would have been motivated to modify Okano in a manner described above for at least the purpose of promoting thermal and oxidation stability within the developing unit.

Claims 9-10 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (US Pat. # 5,177,537) in view of Hare (US Pub. 2004/0157735).

Regarding claims 9-10 and 20-21, Okano does not teach, "a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m²." However, having a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m² is routine in the art as shown by Hare ([0084]-[0085]). It would have been obvious to one skilled in the art at the time the invention was made to modify Okano to include a coating amount of said lubricant on said developer regulating member is 1.5 g/m²-15 g/m² or a coating amount is 0.18 g/m²-1.9 g/m².

The ordinary artisan would have been motivated to modify Okano in a manner described above for at least the purpose of promoting a more effective transfer of toner over the entire surface of a developing device.

Claims 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano (US Pat. # 5,177,537) in view of Naka et al. (US Pat. # 6,586,151), hereinafter referred to as Naka.

Regarding claims 11 and 22, Okano does not teach, "wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. " However, having wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$. is routine in the art as shown by Naka (Col. 6, Ln. 30-67). It would have been obvious to one skilled in the art at the time the invention was made to modify Okano to include wherein said developer contains not less than 90%, by number base cumulative value, of particles having not less than 3 μ m

corresponding diameters and having not less than 0.900 circularities, and wherein a weight average particle size X of said developer, and a number base cumulative value Y (%) of the particles having not less than

$$Y \geq \exp 5.51 \times X^{-0.645}$$

0.950 circularities satisfy: $(5.0 < X \leq 12.0)$.

The ordinary artisan would have been motivated to modify Okano in a manner described above for at least the purpose of reducing the amount of waste toner with high transferring efficiency between the developing roller and a photoconductive drum.

Response to Arguments

Applicant's arguments with respect to claims 1 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

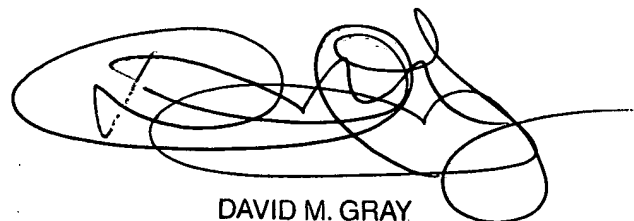
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2852

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan D. Walsh
Patent Examiner
Art Unit 2852

A handwritten signature in black ink, appearing to read 'D. M. Gray', with a large, stylized flourish extending from the end of the signature.

DAVID M. GRAY
SUPERVISORY PATENT EXAMINER